

determine what makes a person to be the person he is. In his solution he makes a distinction which is downright metaphysical: there are certain 'essential' human characteristics which are necessary for being a person at all, whereas those properties that individuate are not essential, that is, are not of logical necessity. However, Ayer is consistent with his assumed empiricist theory of knowledge in his brief study of cause which is reduced to a necessary or sufficient condition and is able equally to be prior or posterior in a temporal sequence.

In spite of its occasional inconsistencies and unverified assumptions, *The Problem of Knowledge* does bear witness to the virtues of the analytic method and to the truly philosophical character of its current applications. As Copleston has pointed out, the linguistic analysis of cause, for example, is an activity quite similar to Aristotle's analysis of causality in the *Metaphysics*. When the analyst approaches such problems with clinical precision allied with the vigor of one who believes himself to be blazing a trail, he compels all others to reflect again, perhaps more carefully, on all too familiar themes.

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***An Essay on the Foundations of Our Knowledge.* By Antoine Augustin Cournot. Translated by Merritt H. Moore. New York: Liberal Arts Press, 1956. Pp. lxx + 615, with index. \$9.00.**

This *Essay* by the French mathematician, economist and philosopher was published in 1852. It now appears in English translation for the first time and it is also the first major philosophical contribution of Antoine Cournot made available to English readers. The plan of the work embraces two capital intentions: first, Cournot seeks to define the nature and limitations of human reason and to set forth the general principles of human understanding; then he attempts to apply these principles to the special disciplines, logic, the sciences, morals, etc.

The fundamental idea illuminating Cournot's view of human knowledge is the conviction that contingency is an objective characteristic of natural phenomena. Chance events are for him a question of fact and not, as Laplace would have it, simply a matter of our ignorance. A cosmic event is interrelated with previous occurrences and with succeed-

ing events; but it is not necessarily related to all past events nor to all future happenings. There is such a thing as an independent series of events. Frequently, two or more of these independent series meet and the result of their concurrence is the chance or fortuitous event, irrational and unpredictable. Owing to the unpredictability of fortuitous occurrences it is impossible to have *certain* knowledge of an event through its causes. The certitude for which the human reason unceasingly strives is in reality inaccessible. This means that any philosophic rationalism that attempts to deduce *modo geometrico* all eventualities from one prime principle can only be a pure fiction. Does this open the way to a Humean positivism? By no means. While chance events are unforeseeable they are still subject to the calculus of probabilities. In the process by which brute phenomena undergo continued observation and experiment, chance causes tend to cancel each other out and ultimately a definite pattern or order is revealed. Since the mathematical probability that chance is responsible for that order is infinitesimally small, then it is highly probable that that order is actually part of the nature of things. And with this probable knowledge the inquiring philosopher must rest content.

When applying his general methodology to the specific sciences, Cournot is able to distinguish the several disciplines on the basis of a discontinuity in nature. Natural phenomena are not immersed in one continuum. There are "breaks" in nature; there are different levels of existence. And higher levels of existence are not to be regarded as merely more complicated forms of the lower. For this reason, excepting the calculus of probabilities and statistical procedures which are of valid use in all branches of knowledge, laws and theories discovered on one level of existence cannot be extended to another. The laws of mechanics, for example, may be highly successful explanations of reality in the field of non-vital phenomena but we should resist the tendency to give them universal application. Organic phenomena are of an entirely different sort and principles and concepts peculiar to their level of being must be discovered and employed.

The reviewer agrees with the translator that it is difficult to understand why Cournot has not received the attention his work merits. It may be due to the heaviness of his style or it may be owing to the fact that he did not quicken to the philosophic novelties of his time. In any event his advocacy of the use of statistical procedures in all fields of inquiry and his defense of the objectivity of contingency certainly make Cournot a precursor of modern thought. This reviewer, as any

Aristotelian, finds much to take issue with in this book, but there are enough points of agreement to make him regret that Cournot had not received more attention from his contemporaries. Particularly satisfying is Cournot's strong contention that, the objectivity of chance notwithstanding, there can be and there is a finality operating in nature; an argument weakened only by the vagueness of his own ideas on contingency. What turn Cournot's thoughts would have taken if he had understood Aristotle, which he obviously did not (p. 552), is an interesting speculation.

Professor Moore's work of translating and editing is indeed praiseworthy. But even more commendable, I think, is his fine introduction which is an interesting appraisal of Cournot the man and the thinker. It alone is sufficient to achieve Moore's purpose in making the translation: "to increase, if possible, the number of persons who will read Cournot as a philosopher."

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***Whitehead's Philosophical Development.* By Nathaniel Lawrence.
Berkeley and Los Angeles: University of California Press,
1956. Pp. xxi + 370, with index. \$5.00.**

The quiet yet incontestable influence of Whitehead, at one time believed to be merely within the realm of the physico-mathematical sciences, is becoming more and more obvious in the social sciences and metaphysics. Whitehead is unquestionably a first-rate metaphysician. But even more, as one of the first real founders of symbolic logic, he is the first man to maintain an on-going relationship between this logic and metaphysics. (We do not discount Peirce, but he seems merely to have set up a vague map without travelling the road.) Can one take lightly a thinker who, it is claimed, has integrated physics, mathematics, biology, sociology, psychology, aesthetics, and metaphysics?

Whitehead is not a philosopher who is easy to understand. He once remarked: "The notion that thought can be perfectly or even adequately expressed in verbal symbols is idiotic. And that supposition has done philosophy immeasurable harm." If this statement means that he thought in concepts and then had the problem of either finding or making words that would be adequate to the concepts, we can recognize